
Space Weather Forecast

Issued on Monday, 17 June 2024 at 00:10 Local

This forecast provides a four day assessment of space weather events. The probabilities stated below are for reaching or exceeding the given levels. For more information about space weather impacts please see the Met Office Space Weather Scales <https://www.metoffice.gov.uk/weather/learn-about/space-weather/uk-scales>

We are aware of some ongoing disruption to data flow from the Space Weather Prediction Centre. As a result, our Alerts and Warnings service may experience delays or contain incomplete data.

Space Weather Forecast Headline: Isolated Moderate flares (R1-R2 radio blackouts) likely throughout.

Analysis of Space Weather Activity over past 24 hours

Solar Activity: Solar activity has been low over the last 24hrs.

There are currently seven sunspots on the disc. The most complex groups all lie in the eastern solar hemisphere, and foremost amongst these is AR3712, a large and complex sunspot region which lies in the southeast. This region has continued to see proliferation of its intermediate spots as well as increasing in overall area in recent hours. Also of note is AR3716 in the northeast, which has also developed intermediate spots and continues to grow in size. The other regions on the disk appear generally stable or are in decline.

No Earth directed CMEs (Coronal Mass Ejection) were in evidence in available imagery.

Solar Wind / Geomagnetic Activity: Solar winds were mostly slightly elevated, initially averaging around 380-420 km/s on a declining trend following a CME (Coronal Mass Ejection) arrival on the 15 June, however increased to around 440-460 km/s following suspected connection with a coronal hole at around 1430 UTC. The Interplanetary Magnetic Field (IMF), Bt, was weak to moderate. The North-south component oscillated between +9 and -8nT. The resultant geomagnetic activity was largely quiet to unsettled (Kp1-3) but became Active (Kp4) for 16/1800-2100 period.

Energetic Particles / Solar Radiation: The high energy (greater than 10 MeV) proton flux observed by GOES18 remained at resting background levels.

Four-Day Space Weather Forecast Summary

Solar Activity: Isolated Moderate flares are likely, with a slight chance of isolated strong flares. This risk primarily from the large, complex sunspot close to centre-disc in the south.

Solar Wind / Geomagnetic Activity: The solar wind is currently slightly elevated at around 450 km/s, likely from a connection with a coronal hole. Slightly elevated solar wind speeds of 400-500 km/s are expected to continue for Day 1 (17 June) and much of Day 2 (18 June), before declining back to background from later Day 2 and into Day 3 (19 June).

Geomagnetic activity is expected to remain at largely quiet to unsettled levels (Kp1-3) for much of the period. During days 1-2 interludes of Active (Kp4) levels are expected, with only a slight chance of some isolated G1/Minor Storm intervals (Kp5) due to connection with the aforementioned coronal hole.

Energetic Particles / Solar Radiation: Solar radiation levels are expected to remain at Background levels, with just a slight but increasing chance of reaching S1 Minor Radiation Storm levels following any significant solar flares.

Geomagnetic Storms:

Geo-Magnetic Storm	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC)	Day 2 (00-24 UTC)	Day 3 (00-24 UTC)	Day 4 (00-24 UTC)
Probability (Exceedance)			(%)	(%)	(%)	(%)
Minor or Moderate	G1 to G2	No	15	10	1	1
Strong	G3	No	1	1	1	1
Severe	G4	No	1	1	1	1
Extreme	G5	No	1	1	1	1

Radio Blackouts - X Ray Flares:

X Ray Flares	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC)	Day 2 (00-24 UTC)	Day 3 (00-24 UTC)	Day 4 (00-24 UTC)
Probability			(%)	(%)	(%)	(%)
Active	R1-R2 M Class	No	70	70	70	70
Very Active	R3 to R5 X	No	10	10	10	10

Solar Radiation Storms - (High Energy Protons):

Radiation Storms	Level (cm ⁻² sr ⁻¹ s ⁻¹)	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC)	Day 2 (00-24 UTC)	Day 3 (00-24 UTC)	Day 4 (00-24 UTC)
Probability (Exceedance)			(%)	(%)	(%)	(%)
Active	≥ S1	No	10	20	20	20
Very Active	≥ S3 *	No	1	5	5	5

* S3 ≥ 10 MeV ≥ 1000 pfu and / or ≥ 50 MeV ≥ 10 pfu. (pfu = cm⁻²sr⁻¹s⁻¹)